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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/627,147	07/21/2000	Michael F. Cohen	MS1-532US	9962

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EXAMINER	
AMINI, JAVID A	
ART UNIT	PAPER NUMBER
2672	

DATE MAILED: 12/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/627,147	COHEN ET AL.	
	Examiner	Art Unit	
	Javid A Amini	2672	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 October 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15 and 18-46* is/are rejected.

7)☒ Claim(s) *16 and 17* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 08, 2004 has been entered.

Response to Arguments

Applicant's arguments with respect to claims **1-15, 19-26, 28-32, 34-36 and 39-46** have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

Claims 16 and 17 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

1. Claim 16.
The blending method of claim 15, wherein said scaling comprises evaluating a matrix system to ascertain a plurality of scaling weights, individual weights of which are used to scale the radial basis functions.

2. Claim 17.
The blending method of claim 16, wherein said matrix system is configured so that its evaluation yields scaling weights which, when used to scale a corresponding radial basis functions, result in a combination of the radial basis functions and the linear approximation to provide the cardinal basis function

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims *1-15 and 18-46* rejected under 35 U.S.C. 103(a) as being unpatentable over Keith Water (hereinafter, referred as Water), Nicolas Dubreuil (hereinafter referred as a Nicolas) and further in view of Yin Wu (hereinafter referred as a Wu).

3. Claim 1,

Waters in Figs. 16-22 illustrates the step of "providing a set of examples that pertain to a shape or motion that is to be animated, the examples being placed within a multi-dimensional abstract space, wherein each dimension of the abstract space is defined by at least one of an adjective and an adverb", and also cover the limitation of abstract space (an adjective or an adverb). In Figs. 16-12 illustrate a character can be set to be happy or sad or sleep or anywhere is in between. Waters in Figs. 4-12 illustrates the step of "selecting a point within the multi-dimensional abstract space that does not Coincide with a point that is associated with any of the examples, the selected a point corresponding to a shape or motion within the abstract space". However, Waters shows various individual facial expressions that can be constructed using Waters muscle expressions in Waters, it appears that each modeled separately from one another. And see page 20, selecting any point P(x,y) located at a mesh node, within the zone V1 Pr Ps is displaced

towards V1 along the vector P V1, this creates P' (x', y'). Nicolas in figs. 4 and 5 on page 102 illustrates different facial components, which are related to one another. Each dimension of abstract space is defined by an adjective and an adverb see fig. 5 on page 102.

Waters in Figs. 16-22 illustrates weight values for each of the examples. "Computing a single weight values for each of the examples", Waters in Figs. 16-22 illustrates the step of "combining the single weight values for each of the examples in a manner that defines an interpolated shape or motion that is a blended combination of each of the examples of the set of examples", also Nicolas in fig. 8 on page 104 illustrates the steps. Nicolas in fig. 15 illustrates four different examples of expression from an object. Waters and Nicolas silence about using B-spline patch construction, but Wu under section 2.1 teaches the step of operations of muscle using B-spline patch construction. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Wu into and Nicolas into Waters in order to take an advantage of three types of facial animation models (physical method, geometrical method and anatomical method), and muscle simulation using Wu's patch construction (B-spline). Nicolas in fig. 7 on page 103 illustrates construction of a circular muscle that is similar to fig. 2 of Wu's paper using B-spline patch construction.

4. Claims 2 and 3,

Waters in Figs. 5 and 6 illustrates by selecting max displacement at the point of attachment to the skin, and at the point of bony attachment zero displacement. Therefore, user does the selection, and the performance is done by an application. "Selecting is performed by an application; and by a game application".

5. Claims 4, 5, and 6

As per claims 4,-6, "Selecting and computing and combining are performed at run time". Waters on page 17 (in introduction paragraph) discloses the storage of the differences between facial positions. This considers for selecting or performing at a run time.

6. Claim 7,

Waters in Fig. 5 illustrates clearly a point V1 that can be considered as a cardinal basis for each examples, and can be evaluated by assuming the displacement point to provide the weight value see Figs. 16-22. "defining a cardinal basis for each example; evaluating the cardinal basis for each example relative to the selected point to provide the weight value",

7. Claims 8 and 9

Waters in Fig. 5 illustrates the cardinal basis as V1. And one radial basis portion as Rs and Rf, with another portion showed by P(x,y) that is different from radial basis portion Rs and Rf.

8. Claim 10,

Waters in Figs. 11(c) and 14 illustrates displacement vs 1/f is linear. "Another portion is a linear portion".

9. Claims 11 and 12

The step of "instructions are executed by a computer", is obvious because Walter on page 17 under introduction, mentioned storage of a computer. And also on the same page under motivation third paragraph discloses the step.

10. Claims 13 and 14.

See rejection of claim 1.

11. Claim 15.

Walter in Fig. 5 illustrates (Rf and Rs) the step of "The blending method of claim 13, wherein said defining comprises scaling the radial basis function for each example".

12. Claim 19.

Walter in Figs. 4, 6-10, 12-14 illustrates the step of "The blending method of claim 13, wherein said linearly approximating comprises approximating the degree of freedom with a least squares linear approximation".

13. Claims 20 and 21.

The step of "One or more computer-readable media having computer-readable instructions thereon which, when executed by a computer, implement the method of claim 13", is obvious because Walter on page 17 under introduction, mentioned storage of a computer. And also on the same page under motivation third paragraph discloses the step.

14. Claim 22.

See rejection of claim 1.

15. Claim 23.

Walter in Fig. 10 illustrates the step of "The computer-readable media of claim 22, wherein the instructions cause the computer to perform the recited acts of linear approximation, accounting, and summing for each example to provide multiple cardinal basis functions".

16. Claim 24.

Walter in Fig. 10 illustrates the step of "The computer-readable media of claim 23, wherein the instructions further cause the computer to sum the multiple cardinal basis functions to provide a function that describes the new form or motion within the abstract space".

17. Claim 25.

Walter in Figs. 8 and 9 illustrates the step of "The computer-readable media of claim 24, wherein the instructions cause the computer to select a point on the defined function and render a new form or motion".

18. Claim 26.

Walter in Fig. 5 illustrates the step of "The computer-readable media of claim 22, wherein each radial basis function has a width that is a function of the distance between its associated example and the next nearest example in abstract space".

19. Claim 28.

See rejection of claim 1.

20. Claim 29.

Walter in Fig. 10 illustrates the step of "The computerized blending system of claim 28, wherein the instructions cause the blending system to perform the recited acts of linear approximation, accounting, and summing for each example to provide multiple cardinal basis functions".

21. Claim 30.

Walter in Fig. 10 illustrates the step of "The computerized blending system of claim 29, wherein the instructions further cause the blending system to sum the cardinal basis functions to provide a function that describes the new form or motion within the abstract space".

22. Claim 31.

Walter in Figs. 8 and 9 illustrates the step of "The computerized blending system of claim 30, wherein the instructions cause the blending system to select a point on the defined function and is render a new form or motion".

23. Claim 32.

Walter if Fig. 5, illustrates the step of "The computerized blending system of claim 28, wherein each radial basis function has a width that is a function of the distance between its associated example and the next nearest example in abstract space".

24. Claim 34,

See rejection of claim 1.

25. Claims 35-36,

Walter in Figs. 4-12 illustrates the step of, "linearly approximating a degree of freedom that is associated with a new form or motion that is to be rendered based upon the set of examples". Waters in Fig. 5 illustrates clearly a point V1 that can be considered as a cardinal basis for each examples, and can be evaluated by assuming the displacement point to provide the weight value see Figs. 16-22. Especially in Fig. 10 illustrates the confluence of two muscles that clearly illustrates the step of "defining a radial basis function for each of the examples; Walter in Fig. 10 or any other Figs. illustrate the linear approximation (non-linear approximation not presented in Walter) and the combination of the linear approximation and the radial basis functions to provide a cardinal basis function, which can be considered as center of two circles. Walter in Figs. 8 and 9 illustrates cardinal basis, and by changing the location of cardinal basis the new form or motion will be appeared, "using the cardinal basis function to render the new form or motion",

26. Claim 39,

See rejection of claim 1.

27. Claim 40,

Walter in Fig. 16 illustrates a rest position. "the first position is a rest position".

28. Claim 41,

Walter in Fig. 17 illustrates, "the first position is a rest position and the second position is angularly displaced from the first position".

29. Claim 42,

Walter in Fig. 15 illustrates the step of, "computing a plurality of vertices associated with the form".

30. Claim 43,

Walter in Figs. 16-22 illustrates, "after computing the plurality of vertices, geometrically blending the computed form in the first position with the first example form in the first position to provide a geometrically blended form in the first position",

31. Claim 44,

Walter in Figs. 15-22 illustrates, "geometrically blending, transform blending the geometrically blended form to provide the form that matches the second example form".

32. Claim 45,

Walter in Figs. 15-22 illustrates, "the example forms pertain to a skeleton-based figure".

33. Claim 46,

See rejection of claim 1.

34. Claims 18, 27, 33, 37 and 38

Wu under section 2.1 teaches the step of operations of muscle using B-spline patch construction.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Javid A Amini whose telephone number is 703-605-4248. The examiner can normally be reached on 8-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Razavi can be reached on 703-305-4713. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Javid A Amini
Examiner
Art Unit 2672

Javid Amini

JEFFERY BRIER
PRIMARY EXAMINER